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The DomeX Experience

A First-Hand Report

by James Hyder

As we have reported previously, [Cosm](#), the new parent company of [Evans & Sutherland](#), [Spitz](#), and [Live Like VR](#), has launched an Experience Center at the E&S headquarters in Salt Lake City, UT, that features the first DomeX system, a 66-foot (20-meter) 8K direct-view LED dome. The company invited the editor of *LF Examiner* to see the system in person in early April.

The DomeX demo installation is a vertically oriented partial dome with a field of view of 180 degrees laterally and 112 degrees vertically, about 70% of a full hemisphere. (It will also be available in a full 180-by-180 hemisphere in tilted or flat orientation, and in other configurations and sizes.) The resolution is 8,192 pixels across 180 degrees, with a pixel pitch of 3.8 mm, for a total image size of 29.5 million pixels. It is capable of 120 fps, and can display stereo 3D at 60 fps per eye with active glasses. The system meets the Rec. 709 color gamut standard and 92% of the wider DCI-P3 standard. (A version capable of the full DCI-P3 gamut will be available.) The dome's 7,970 LED modules are attached magnetically to the Spitz-designed framework, and, like the skins of

(see *DOMEX* on page 2)

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Behind the Scenes of Stephen Low's *Train Time*

Train Time is the latest giant-screen production from the **Stephen Low Company**. It is a 5,000-mile-long journey from Chicago to L.A. via a southern route and returning along a northern one, exploring the world of giant freight trains and their crews. It opens with the memory of the model train toys of youth and then goes on a ride with the latest high-tech green locomotives that weigh nearly half-a-million pounds pulling trains up to a mile long. Now, climb aboard as GS veteran **Diane Carlson** goes behind the scenes with the films' director, **Stephen Low**, director of photography **Tristan Breeuwer**, and executive producer **Pietro Serapiglia**.

Diane Carlson: Stephen, anyone who chats with you for even 15 minutes will learn about your passion for trains. When did that passion get its start?

Steven Low: It started when I was one year old, really! My family lived in Montreal and my grandparents lived in Alberta, 2,000 miles away. And from the time I was one year old until I was 20, we made a family trip once a year to see my grandparents. And that trip was always via train; it was a two-day, two-night ride. And at that time, bolted tracks resulted in a special "clickety-clack" rhythmic sound that that was soothing — rocking you to sleep — and as a kid I loved it. Now, with more modern welded rail, this syncopated sound from my childhood is a fond memory.

I became a volunteer at the local railroad museum when I was 11 years old, and I still contribute to it today. In the 1960s streetcars and steam engines that were going to be scrapped were saved by the museum that is now called the Expo Rail Museum. We frantically laid track

every weekend to save our extraordinary railway history before it could be scrapped. Currently there is an expansion project that will include a new giant-screen theater and another large building to save equipment not yet stored properly.

When I was at university in the early '70s, I worked for the Canadian Pacific Railway as a switchman, trainman, carman, and brakeman on both passenger and freight trains out of Thunder Bay, Ontario. When I was 24 years old, I was offered a management trainee position with the Canadian Pacific, but I turned it down to pursue a career in film.

But I always wanted to make a railroad film from my earliest days with the railroad. I mean, the engines were so heroic, huge massive fast machines, perfect for IMAX. And since my father made films and was an IMAX film pioneer, of course I knew about the giant screen and dreamed of putting magnificent trains in their natural domain — amongst extraordinary epic scenery on the screen — for people and especially kids to appreciate. Lots of kids don't have the opportunities to travel that I had, but the giant screen can give them a perspective that even railroaders don't get to see; the aerials, to name one thing.

So being able to make *Rocky Mountain Express* and *Train Time* are dreams fulfilled for me.

DC: What were some of the challenges that you faced making *Train Time*?

SL: There are always technical and logistical challenges when you make any giant-screen film but for *Train Time* scheduling and weather were huge issues. The [BNSF Railway](#) network that we were working on

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Founded 1997 as MaxImage!

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A First-Hand Report on DomeX

(from *DOMEX* on page 1)

projection domes, they are perforated to allow pas-
 sage of air and sound. The Experience Center's
 dome has a custom 30.4-channel surround sound
 system.

DomeX is powered by Digistar, E&S' real-time
 rendering engine. Giant-screen clients can opt for
 the ESX interface, which provides a subset of Digi-
 star's real-time functions but does not include its
 extensive astronomical capabilities, or can add astro-
 nomical programming to their schedules with the
 full Digistar system. Both versions can accept, dis-
 play, and manipulate external inputs from virtually
 any digital image source.

DomeX is not yet DCI-compliant, because of the
 difficulty of meeting the spec's encryption require-
 ment, but E&S says it is working with the DCI or-
 ganization to find solutions.

Since the earliest days of giant-screen cinemas, the
 goal has been to make viewers feel as if they're actu-
 ally in the picture. The original IMAX and OMNI-
 MAX theaters came much closer to fulfilling that
 promise than any previous film systems. The found-
 ers of [Imax Corporation](#) found powerful light
 sources to project bright and clear images of the
 huge 15/70 film frame onto giant screens that filled
 the audiences' field of view. Today, the ultra-high
 resolution of 15/70 film may have been matched by
 some high-end digital projection systems, but it has
 rarely if ever been exceeded.

But domes have always been problematic because
 of the issue of cross-reflectance. Light levels must be
 kept much lower than on flat screens, and bright
 scenes must be avoided or dimmed down in post.
 Even then, dome contrast levels are always much
 lower than their flat counterparts.

Digital tech has reduced many of the shortcom-
 ings of film projection by boosting resolution with
 multiple projectors and increasing light levels with
 lasers. And digital can handle high frame rates
 much more easily than film. But any kind of projec-
 tion onto a reflective screen will always entail limits
 to contrast.

The official standard for light levels in cinema
 projection — film or digital — has long been 14 fL
 for 2D (although many multiplex screens don't
 meet the standard). The official standard for IMAX
 is 22 fL, 50% brighter, and Dolby Vision (about
 which we have previously raved, *see Summer 2015*)
 is 31 fL, 50% above IMAX and more than twice
 that of conventional cinema.

DomeX is capable of 150 fL, five times brighter

than Dolby, seven times brighter than IMAX, ten
 times the conventional cinema standard, and nearly
 40 times the brightest domes.

This means its contrast ratio is orders of magni-
 tude greater than any projection system. Although
 some specialized fulldome projectors use techniques
 to lower black levels, most projectors still emit a
 small amount of light when displaying "black." LEDs
 emit *zero* light at the low end of the scale and
 five times more light than the best HDR laser pro-
 jectors at the high end. When the DomeX screen
 was full black, no light was visible anywhere in the
 room. It was the deepest blackout I have ever seen
 in a cinema system.

With its vastly higher brightness and contrast, 8K
 resolution, and the elimination of cross-reflectance,
 DomeX comes far closer to the experience of
 "actually being there" than any previous system. In
 2015, many industry observers called the first laser
 projectors from IMAX and other manufacturers
 "game changers," and I opined then that Dolby
 Vision was "head and shoulders above all of them."

DomeX is far, far better even than Dolby Vision.

It's nearly impossible to express in words how
 compelling, realistic, and breathtaking the experi-
 ence is. It is simply unlike any other cinema system
 you've ever seen, and only a hair's breadth away
 from looking at the real world. And this is despite
 the fact that most of the material we saw was dis-
 played at 50% of the system's full brightness!

Cosm showed us a variety of material from many
 sources, including clips from GS films, 360-degree
 footage, real-time graphics, and astronomical star-
 fields from the Digistar 7 engine. To date, very little
 material has been shot in 8K at 120 fps, so Cosm
 wasn't able to demonstrate DomeX to its fullest, but
 even 60 fps footage at 8K or 4K was stunningly
 bright, smooth, and clear. Although the GS clips
 also looked great, several were mastered at 4K and
 did not live up to the potential of the display. Scenes
 from **Stephen Low's *Rocky Mountain Ex-
 press***, shot on 15/70, were gorgeous, but several
 scenes from other GS films clearly demonstrated the
 need for HFR: 24 fps juddering and strobing that
 might not have been as visible at lower light levels
 was painfully obvious and distracting.

(A brief aside: within a few years, as more and
 more 15/70 film projectors are retired, filmmakers
 will no longer have an excuse to continue shooting
 at 24 fps, which has always been inadequate for
 giant screens. The tricks filmmakers have used to
 mask the flaws inherent in 24 fps will no longer

work with the next generation of displays. GS producers and distributors should start preparing to shoot at higher frame rates for all productions as a matter of course. It's more expensive, it's more complicated, but it *is* the future.)

A film shot specifically for DomeX in high dynamic range, at 8K (or higher), and 120 fps would simply be revolutionary.

But you don't have to take my word for it. Also present at the demo I attended was **Leslie Smith Rosen**, an educator and school administrator with four decades of teaching experience at every level from K to 12. (She also happens to be my wife.) She says, "It's truly incredible. It's going to take going to the movies to a whole new level. Unlike you and your readers, I'm not an industry insider, but you don't need to be an expert to see that this makes movies exciting again. It's a reason to leave your big screen TV, get out of the house, and go to a theater. It's totally immersive in a way that's completely different from regular giant-screen or fulldome shows. It's a quantum leap."

LF Examiner is the first, and as of this writing the only, media outlet to have seen DomeX, and to date only a handful of

other GS industry insiders have seen it.

One of those is **Michael Daut**, now with [K2 Studios](#), but formerly creative director and marketing director at E&S until 2018. (Although he was aware of the DomeX project while at the company, he was not directly involved with it, and only saw it for the first time earlier this year.) He reports:

"LED dome technology has advanced the state-of-the-art for dome theaters so dramatically that it should be considered a true paradigm shift. When the LEDs display black, it is *black* — I could not see my hand in front of my face — and when it is bright, it is *bright*! The 8K imagery completely filled my peripheral vision and created the sensation that I was looking through a virtual window on the world. The 8K canvas is so astonishing that it now shifts the burden of quality to content producers. The ultra-bright, extremely high-contrast dome surprisingly revealed imperfections and limitations in the content itself. With LED dome technology, digital domes have finally become a legitimate shared-audience virtual-reality platform, where the boundaries between the real world and the virtual world have fully

melted. LED technology clearly is the bright future of dome cinema. This changes everything."

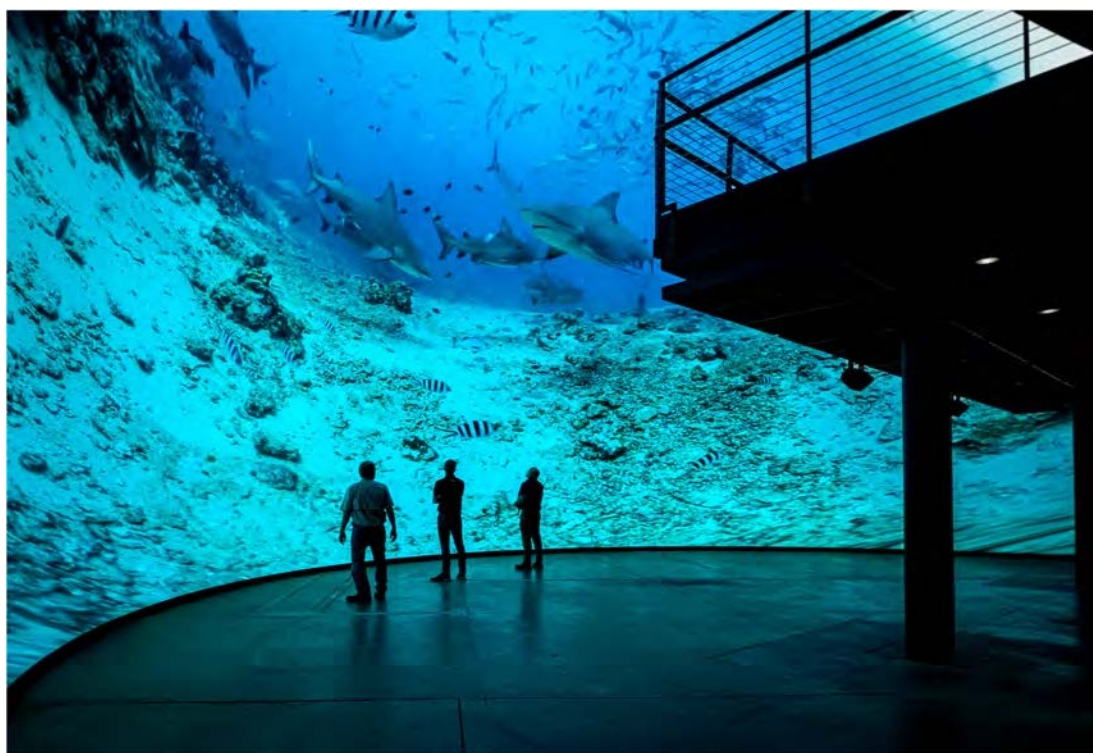
Another is GS director and producer **Christian Fry**, who told *LFX*, "I was truly stunned by the displayed 8K imagery with its amazingly high contrast and brightness. The giant-screen images came to life in a way unlike any I have ever experienced. I was left with one clear impression: this technology is an absolute game changer in the world of cinematic exhibition. My filmmaker's mind exploded imagining the content possibilities for such truly immersive screens, and I can even see these displays leading to the creation of new dome theaters. Words do not do the tech justice; like the first HD flatscreen displays, it must be seen to be believed. Simply, wow."

Downsides

The DomeX image is not 100% perfect, but I hesitate even to mention the following "flaws," since doing so risks creating an unfair impression of the stunning quality of the presentation. The first issue I perceived is that, from about the center of the 66-foot dome, 8K is *not quite* eye-limited resolution. I could *just barely* make out individual pixels in the image, although I had to look very closely and carefully to do so. But in ordinary viewing, pixels are completely imperceptible. In any case, DomeX is a tremendous improvement over the 4K IMAX laser dome system, whose pixels are four times larger.

One other very slight imperfection is that, only in some brighter scenes, gaps between the panels are visible in areas of the screen, because of the very slight differences in the spacing of LEDs in adjacent panels. (E&S says that the tolerance between panels is 4/1000ths of an inch, the width of an eyelash!) The effect is far more subtle than the panel seams

(see **DOMEX** on page 4)



The 66-foot (20-meter) DomeX LED dome at Cosm's Experience Center in Salt Lake City.

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of old-style domes, and is not visible at all in most scenes. Furthermore, E&S general manager **Kirk Johnson** says the company is working on a software solution that will probably fix the problem within a few months.

I want to stress again that these are *extremely* minor issues that have virtually no impact on the amazing experience that is DomeX.

Of course, the biggest obstacle to adoption of DomeX in the GS community will be the expense. Cosm has not publicly disclosed pricing, which will in any case vary based on the precise configuration of each installation. However, the range will probably be in the neighborhood of \$5 million to \$6 million.

While this is roughly three times the cost of a top-end fulldome projection system, the experience is so much more impressive than any projection system, at any price, that it is bound to attract an unprecedented level of public and media attention. The excitement it will generate cannot fail to bring in audiences in droves, and completely revitalize any existing theater that installs it.

The promise

As our annual GS theater reports have documented, the state of the industry, even before the global pandemic broke out last year, has been tenuous for many years. The number of institutional theaters has been steadily declining, and most were reporting flat attendance levels, at best, before the shutdowns. The latest state-of-the-industry report from **Paul Fraser** of [Blaze Cineworks](#) at the [Giant Screen Cinema Association's](#) Film Expo this month revealed that most theaters don't expect to be back to 2019 attendance levels until 2023 at the earliest.

So this may not seem to be the best time to propose expensive new technolo-

gies, but as the saying goes, desperate times call for desperate measures. Simply continuing to do the same things we've been doing for the last decade will not help GS theaters and producers pull out of this slump. That path almost certainly leads only to fewer and fewer theaters and the eventual collapse of the business.

However, the expense of DomeX (or other advanced technologies) may not be the barrier it first appears to be. Low maintenance costs and the absence of a need to upgrade projectors every five or six years should lower the total cost of ownership. Cosm states that the expected lifespan of the LED panels at 100% power is 100,000 hours: more than 27 years with a ten-hour daily show schedule. And most users will rarely if ever run anywhere near 100% power.

Furthermore, although I did not discuss this with anyone at Cosm, financial models such as leasing or profit sharing, common in the GS business for decades, might be arranged to make the investment more manageable.

For years *LFX* has been urging filmmakers and theaters to look at new ways to differentiate the GS experience from conventional cinema and home theaters, such as high frame rates and high dynamic range. DomeX and flat-screen LED dis-

plays are the next big step that combines these techniques and has the potential to revolutionize the GS experience, bringing in new audiences and inspiring new generations of students.

It will be a challenge for museums and science centers to raise the funds to install them, but Cosm and flat-screen providers like [Samsung](#) are also looking to theme parks and other well-funded commercial clients.

The [MSG Sphere at the Venetian](#), under construction in Las Vegas, is a 366-foot (112-meter) spherical arena with 17,500 seats that will have a custom LED screen on its inner surface with a resolution of 13.5Kx19K over a total area of 160,000 square feet (15,000 square meters). Another LED display will cover its outer surface as well. It is expected to open in 2023. (As far as we know, neither Cosm nor Samsung are involved in this project.)

So new high-brightness, high-resolution LED dome and flat-screen installations are coming. The question is whether they will be used to inspire generations to come with thrilling factual documentaries (and revive the museums and science centers hosting them) or merely to entertain the masses.



Controllers for the LED panels on the back side of the DomeX dome. The installation uses 4.6 miles of Cat6 cable.

THE BIZ

GSCA 2021 virtual meeting in fall

The [Giant Screen Cinema Association](#) will hold its 2021 conference virtually in the fall, on dates to be announced. The association's board voted unanimously on the measure, saying "it is prudent to make this decision now to allow planning to begin." As with the virtual 2020 conference, this year's meeting will include online film screenings, professional development sessions, an innovations session, and networking opportunities. The 2021 virtual Film Expo was held on three days in mid-April, just as this issue was going to press.

The association says it hopes to resume in-person meetings next year, starting with the 2022 Film Expo.

Chicago IMAX closes permanently

Chicago's [Navy Pier IMAX at AMC](#) has closed permanently, according to the official [AMC Theatres](#) Web site. The chain did not provide an explanation, although, like all theater operators, it has been struggling since the coronavirus lockdowns began last year.

The fate of the theater is unclear. The Navy Pier management company said in a statement that "we look forward to exploring and introducing a new and exciting attraction in that space very soon." Among the pier's other attractions are the Chicago Children's Museum, The Chicago Shakespeare Theater, and a ferris wheel.

The IMAX theater was developed by **Cineplex Odeon** and opened in September 1995 with a 3D GT film projector, a 35x83-foot (19x25-meter) screen, and 395 seats. Its founding director was **Valentine Kass**. It was managed by Imax Corporation from 2002, and in 2016 it was acquired by AMC, which installed an IMAX laser system in September 2017.

Wechsler to leave Imax board

Bradley Wechsler, chair of the board of [Imax Corporation](#), has announced he will step down from that position as of June 9, 2021. The company will announce his successor after the annual general meeting being held that day. Wechsler has been the chair since 2009, before which he was

co-CEO with **Richard Gelfond** from 1996. Gelfond and Wechsler acquired Imax through a leveraged buyout in 1994.

Wechsler is CEO and managing partner of investment company Elysium LLC, and a member of the Motion Picture Academy of Arts and Sciences. He holds a bachelor's degree from Brandeis University and a J.D. from Columbia University.



Phyllis Ferguson

Imax, Barco extend projector deal

Imax Corporation and projector maker [Barco](#) have expanded their existing partnership and will "collaborate on optimizing the use of Barco's latest cutting-edge laser light source technology" to convert more than 1,000 existing xenon-based IMAX systems to laser projection over time.

The original IMAX digital projectors, rolled out in 2008, were developed with [Christie](#), but since 2012 Imax has partnered with Barco to make its xenon- and laser-based systems.

LA's Cinerama Dome closes

[Pacific Theaters](#), a Los Angeles-based theater chain, has announced that the pandemic has forced it to close the 16 theaters and 300 screens it operates under

the Pacific and **Arclight Cinemas** brands, including the iconic Cinerama Dome in Hollywood.

Built in only 16 weeks in 1963, the geodesic dome did not have Cinerama's original three-strip projection system when it opened, but instead used the new 70mm Cinerama process to premiere *It's a Mad, Mad, Mad, Mad World* that November. In 2002, after a two-year closure, the theater was reopened under the Arclight name, and a three-projector Cinerama system was installed, one of only three in the world.

The Large Format Cinema Association screened the original three-strip *This Is Cinerama* (1955) in the theater as part of its May 2002 conference.

In Memoriam: Phyllis Ferguson

Phyllis Ferguson, wife and creative partner of **Imax Corporation** co-founder **Graeme Ferguson**, died on March 12, age 70 in Toronto. Her giant-screen credits include co-director for *Destiny in Space* (1994), and associate producer on that and four others: *Hail Columbia!* (1982), *The Dream is Alive* (1985), *Blue Planet* (1990), and *Mission to Mir* (1997).

Born in Quetico, ON, Phyllis Wilson was member of the Algonquins of Pikwakanagan (Golden Lake) First Nation. She attended Port Arthur Collegiate Institute and later Confederation College, both in Thunder Bay, ON. She worked for CBC radio and the CTV television network before becoming a freelance location manager for feature and television films.

Wilson met Graeme Ferguson when she was hired to work on the second IMAX film, *North of Superior* (1971), for [Ontario Place](#) in Toronto. According to the [Globe and Mail](#), "In the process, she fell for its director. At the time, Graeme Ferguson was 41 and still married to his first wife, avant-garde filmmaker Betty Ferguson. Phyllis was 20 years younger." In 1977, they worked together *pro bono* on a documentary short she directed, *Nishnawabe-Aski: The People & the Land*, for the [National Film Board of Canada](#). The

(see **BIZ** on page 14)



L to r: Director Stephen Low, first assistant camera Philippe Prud'homme, and key grip and master rigger Derek Teakle with the IMAX camera.

(from TRAIN TIME on page 1)

was at full capacity; many times we just could not get the filming windows with the right light and weather conditions because the priority was for the freight to get through.

As filmmakers we want the best conditions and sometimes those are dramatic and dangerous. There was the winter sequence with an avalanche to name one. They would not let us into the avalanche zone at first due to safety concerns. The priority, of course, was to get the 80 backed up trains moving through the pass as soon as possible. So we had to wait three days before going to shoot. We got some great footage but we probably could have gotten even more dramatic big-screen shots had we been allowed access immediately. There were some shots that I wanted to capture that just weren't possible due to safety limitations.

There was one shoot that was all planned with an historic steam train on a special run for us, in the Columbia Valley in Oregon. It was supposed to be a secret operation. But the "secret" was leaked and what should have been fairly simple and straightforward shoot became complex

because the steam fans found out about the shooting and private cars lined the route adjacent to the line, with iPhones out en masse!

And the weather is always an issue. We were fortunate that one of vice presidents at BNSF also loved this steam locomotive, so he was of great help in getting the freight trains to yield the track to us. The freights had to wait for us, while we were delayed for weather, stopping to refuel the helicopter, or to reload film. It was challenging and tricky, but exciting at the same time. Given the logistics, it is amazing that we got the film made.

And there are always surprises, from avalanches and rain storms to bears and cows on the tracks. We had a close call with a cow, but fortunately we did not hit it. I recalled from my railroading days that if there are animals running down the middle of the tracks at night, turning off your headlight for a bit seems to help reorient them to move off of the track.

DC: What were some of the positive aspects of working with the BNSF staff?

SL: Aside from the scheduling challenges that were just a part of the reality of

filming a working railroad, it was great to be on these giant trains. And we were so lucky to have a filming train to ourselves for a month. Eight of us on the film crew stayed on the train: we had two sleeping cars, a dining car, and Warren Buffett's private car! The accommodations were very good; we even had our own chef! And the food was great. Given the physical challenges of the shoot – hanging on the front of a 70mph locomotive for 12 hours a day – that was very much appreciated. The rest of the crew stayed in hotels, had production cars, and followed alongside, including a fuel truck for the helicopter. There were a total of 16 people on the film crew.

It was amazing for me to see just how much the safety protocols had improved since the "medieval" 1970s when I had worked on the railroad. I'd say that they were increased 100 times over! When I had worked as a crewman it was understood that if you fell off of the train it was your fault! The film crew had a lot of safety training, and every morning of shooting began with a safety meeting led by BNSF staff.

And it was great working with the train crews; they were very excited at the idea of their work being featured in a film. These people work hard and often their work is not recognized or understood outside of their working environment. They have a passion for what they do. And they are key to keeping the supply chain moving in America.

DC: What is the one thing that you want people to understand about trains?

SL: That trains are incredibly energy efficient and getting greener every year. We need trains; they are part of the solution for our climate issues. Once trains can be electrified, with zero-emission hydro, solar, wind, or even nuclear power they will be fossil-emission free. Even now trains can move one ton of freight 470 miles on one gallon of fuel; that is the most energy-efficient way to move goods either over land or by air. They crush the competition on energy efficiency. Only a sailing ship is currently more energy efficient, and they aren't too practical.

People don't necessarily appreciate the

underlying physics of what makes trains so efficient. The key is the low rolling resistance of steel wheels on steel rails compared with rubber tires on asphalt. A passenger train can use as little as about one horsepower per seat. Jet aircraft can use as much as seven hundred times that per seat. Entirely unsustainable, if you ask me! We need to start understanding energy inputs at every level.

Thinking about this globally, look at what the Chinese are doing. They have undertaken huge railroad construction projects across Asia, into Europe, and in Africa. They understand that rail is the most energy-efficient way to move goods and people across land. And the land routes are often shorter than long sea voyages. Rail is also capable of converting to zero emissions with much greater ease than water, highway or air transport. Eventually they will be able to run with renewable energy like power from windmills. In theory, at least.

DC: I understand that you lent some of your toy trains to the layout that was built for the film. What does your collection include? And did you have “train time” at home when you were growing up?

SL: Yes, we had train time and I still have my little “American Flyer” that circled our kitchen when I was young. My distraction now is collecting live steam engines that actually run on steam. These are handcrafted 1:32 scale working engines. I started collecting in the '70s when there were only a few British models from the 1920s and '30s.

In 1975, a Japanese typewriter firm that was going bankrupt started producing model steam engine kits that you could assemble. They produced many of the ones with a great history, like the engines featured in *The Bridge on the River Kwai*, *Lawrence of Arabia*, *Dr. Zhivago*, and *Murder on the Orient Express*. I have all of those, plus some Chinese, Russian, French, American, and Australian ones. The largest one is the Allegheny, one of the largest steam engines ever built. This model is about four feet long. They have thousands of precision parts.

The Japanese and Chinese draftsmen and craftsmen do an incredible job not

only on the design but the complex instructions for the assembly. It would take me about a year working several hours a night to complete one of the kits. The collection tells a fascinating story of how steam engines shaped the world and how each country specialized its engines for local circumstances, industries, topography, and cultures. The art and engineering of the each engine tells a story, a really rich story. In their day they were the Space Shuttles or Formula One cars of their time. So, yes, I still have train time at home.

DC: Why did you make *Train Time*?

SL: I made *Train Time* in part because we need kids to be inspired about the world around them; after all, they are our future. Trains are a great vehicle to get them interested in science, engineering, and technology, not to mention social history, music, and even art. Think of all the kids who right now are playing with Thomas the Tank Engine or Brio trains. And the giant screen is so special; it's so much better than TV for educating and exciting people about a topic.

I was very lucky as a kid. I had experiences and access to things that kids nowadays just don't have.

When I was as little as four or five, I visited the cabs of locomotives, the cockpits of airplanes, and the wheelhouses of Great Lakes freighters with my father. He knew the power of a small child: “This little boy would like to see the cockpit.” I cannot recall ever being turned down.

The train yards were downtown in most cities and kids played on the tracks even at night! I'm not recommending that, merely suggesting it was a different world, not so ruled by lawyers and insurance companies. I loved watching how things worked, how ships were loaded and unloaded, how factories worked. Now days it's hard to get anywhere near industry, especially with children in tow.

I even got to watch molten hot Coca-Cola bottles being made. Many factories had tours for school kids. Kids no longer have as many of these kinds of hands-on experiences, but we can do the next best thing and bring them the experience on the giant screen.

(see *TRAIN TIME* on page 8)



Filming the Southern Pacific “Daylight” 1940s steam engine with the IMAX camera for *Train Time*.



L to r: First assistant camera Philippe Prud'homme, and key grip and master rigger Derek Teakle rigging the IMAX camera in front of the engine.

(from **TRAIN TIME** on page 7)

I think kids in school must be thinking “What can I do in the future?” There are many good careers in the rail business (and many others) and we show a variety of these in the film. We need to expose potential careers to kids, to show them what’s possible, to get them engaged and excited about the world they will inherit. Kids all want to go into space or even play in the NFL, but statistically that’s not a reality. Kids need dreams that they can work towards, dreams that can come true.

We also show that trains are getting greener and that they are much higher tech than people think. I hope that some children – both girls and boys – who see this film will grow up to help make trains even more energy efficient and zero emissions. Science is so critical now with global warming becoming the greatest challenge in human history and a threat to all life on earth.

I think the railroad, and all the efficiency that it represents, is a good intro into science and technology, and among the most fun. It is, after all, a journey across the wilderness, a trip you can actually take yourself with a simple ticket to ride, or even as a lifelong career. Short of that, after your little ones have grown up and left home you can pull that toy train out of the closet and get it running. That

might be the most fun of all.

My passion for the giant screen as an educational and inspirational tool drove me to make this film and, of course, many others.

Tristan Breeuwer joined the Stephen Low Company in 2009; this is his third DP credit.

DC: Tristan, what are some of the special challenges that you faced in filming *Train Time*?

Tristan Breeuwer: Safety was the number-one priority and that was a huge overarching concern for the entire project. This includes personal safety for all of the crew, and protecting our equipment and the train as well. Due to its massive size, the train is something that people who aren’t involved with the shoot might not even think about. We had to take particular care not to even rub the orange paint on the locomotives with our rigging! So you are building frames out of pipes – maybe 100 feet of pipe of all different lengths from two feet to ten feet – and attaching them together to the train with clamps, straps, and suction cups. Just think about Stephen’s classic coming at you head on engine shot. What does it take to do this? Well, you need to have the IMAX camera about five to six feet out in front of train. That is a lot of weight sus-

pended on rigging that you can’t drill into the frame of the engine to secure. And it has to be rock steady. For this shot we had a wired remote to the first camera assistant who was in the cab of engine.

As we made our way along the track, nearly every day we had a new safety coordinator who we would meet with each morning. They were the experts for their section of the line. On one occasion we wanted to capture two trains rushing past each other from the point of view of the engineer, as if looking out of the window. Leading up to the cab there are a set of steps and we rigged our IMAX camera to be there. The limit that the camera could protrude out was ten inches: those trains really are close to each other when they pass.

So we got the shot. The train stopped and we got the camera off, but left the rigging on the train, waiting until the end of the day to take it off. Then we went over an old bridge that had less clearance. The coordinator, having focused on the distance between the two trains, had forgotten about a few older bridges along this section of line that had slightly narrower clearances. We lost the rigging! Thank goodness we had taken the camera off or we would have lost it, too. The train was not damaged, and that was good, too.

At the other end of the rigging challenge was setting up to get the photos at track level; we used some digital cameras there because the clearances were so tight. For any shots taken from the train vibration is the issue, and the work of the rigging team was incredible.

We also used helicopters, as well as a 20-foot crane with a Sony Venice camera in the hump yard in Kansas City.

DC: What about other new experiences in the making of *Train Time*?

TB: While Stephen had grown up with model trains I had not, and I was in charge of designing and getting the model train layout built. That was a lot of fun because I could build it with the shots that I wanted in mind. We wanted a very dreamy feel for the recalling of memories of playing with a model train layout. So we chose a highly reflective surface for the layout, which was unusual. While the layout was built from scratch, we borrowed

many of the buildings, and the “working” trains were from Stephen’s collection. It was my first time working with kids on a shoot and that was very difficult. The kids were great but they were not professional actors; they were very interested in the filming and kept looking at the camera. That short sequence took three days to shoot.

DC: How long is that sequence in the film? How did the children react to the fog in the shot?

TB: The final running time of the shoot is a little over two minutes. And the top half of the “fog” is digital. It was added afterwards in part to boost the effect, but also to hide the ceiling tiles that would be distracting that were in the room we were in.

DC: What are some of your favorite shots that are in the movie?

TB: There are so many! I love ones that give you the sense of being in the locomotive with the point of view of the engineer leaning out of the window. There is a shot in a snow shed that I really enjoy because of the pattern of the light and shadows. And of course, the wide shots in 15/70 are incredible. But one that I really like is the 15/70 shot of entering Seattle: the city is in the distance, the port with the water and cranes are to the left, you see the tracks taking you into the city. All of the detail and all that is going on in that shot is fantastic.

Pietro Serapiglia is producer and head of distribution for *Train Time*.

DC: Pietro, you have worked for Stephen on 18 giant-screen films, sharing the title of producer on 17. What was new to you on this production? Any new insights?

Pietro Serapiglia: From my *Rocky Mountain Express* experience I know that audiences love the giant-screen ride on trains through incredible landscapes. But as a Canadian I was well aware of the story of how the Canadian Pacific united eastern and western Canada to build our country.

Now, with *Train Time* I got a completely new insight that as a consumer I had never thought about. Whether it is my breakfast cereal, the grain for my bread, or even my car, they all traveled by train to

get to me. Also, I had never seen the great “middle” of America and the vast landscapes, including deserts and agricultural land, are pretty fantastic.

From talking to friends and family about trains, I have been reminded just how much kids love trains, and once again, “Uncle Pietro” gets to work with trains. I really scored points with my family when two of my grand nephews and a grandniece got to be extras in the film! And, of course, I love music so that part of any film project is always very special for me; there is a great collection of train related and inspired music.

I think that Americans will be impressed with the railroad employees who work hard 24/7 to keep the supply chain moving. And one other thing: I never knew that there were women working as train engineers! That was totally new to me. I did not see that when we filmed *Rocky Mountain Express*. In fact, women work many different roles in the railroad industry and the largest freight rail system in North America (and our film sponsor), BNSF, just promoted a woman, **Katie Farmer**, to be president and CEO; she started as a railroad trainee right out of college. I know that science centers are interested in promoting non-traditional science and engineering jobs to young girls and in *Train Time* they will see women

working on the railroad. This is something that they probably never even thought about as a career option.

I also saw once again how Stephen’s true passion for trains got this film made. He understands and loves trains of all kinds, from collector’s models to the giant steam engines of the past to the high-tech trains of today. He could talk “railroad talk” with the management, but also with the on-the-ground workers. It did not hurt that he, too, had once worked on a train.

Even after 30 years in the GS world I still get excited when I see our images on a giant screen with incredible surround sound, and I hope that theaters are soon able to welcome back guests to their theaters to board *Train Time* and the other great films that so many people have been working on for the past year.

Train Time will be released in the summer of 2021 in IMAX digital and laser and DCI-compliant formats. For more information, visit www.stephenlow.com

Diane Carlson is principal of Giant Screen Cinema Consulting. Before founding the firm in 2017, she managed the IMAX theaters at the Pacific Science Center in Seattle, WA, for over 35 years. She can be reached at dianecarlson-gsc@gmail.com.



The Train Time film crew in the dining car.



* New listing.

All films are 3D unless noted; underlined titles are 2D.

Updated information is printed in **bold**.

Unless noted, all films run about 40 minutes.

Mars 1001 (wt)

Mirage 3D; director, writer: Robin Sip; producer: Akemi Makado; DP: Christiaan Wouda; score: Mark Slater; executive producer: Robin Sip. Cast: Miles O'Brien, Anna O'Grady, Mark Holden, Lisa Came, Nicholas Lupu. Release: May 2021.

Cephalopods: Aliens of the Deep

Saint Thomas Productions; distributor: nWave Pictures Distribution; director, producer: Bertrand Loyer; DPs: Kevin Peyrusse, Marta Sostres, Jerome Maison, Bertrand Loyer; score: Samuel Safa. Narrator: Jacqueline Farmer. Release: Spring 2021.

Dino Dana: The Movie

Sinking Ship Entertainment; distributor: Sinking Ship Entertainment; director: J.J. Johnson; producers: Eric Beldowski, Blair Powers, Christin Simms, Matthew J.R. Bishop; DP: George Lajtai CSC; script: J.J. Johnson, Christin Simms; score: Michael-Paul Ella; executive producers: J.J. Johnson, Blair Powers, Christin Simms, Matthew J.R. Bishop. Cast: Michaela Luci, Saara Chaudry, Nicola Correia-Damude, Amish Patel. 2D. 30 minutes. Release: June 2021.

Everest

MacGillivray Freeman Films; distributor: MacGillivray Freeman Films; directors: Greg MacGillivray, David Breashears, Steve Judson; producers: Steve Judson, Alec Lorimore, Greg MacGillivray; DP: David Breashears; script: Tim Cahill, Steve Judson; score: Daniel May, Steve Wood. Narrator: Liam Neeson. Cast: Araceli Segara, Jamling Tenzing Norgay, Ed Viesturs. 2D. Release: Summer 2021.

Train Time

Stephen Low Company; distributor: Stephen Low Company; director, script: Stephen Low; producer: Pietro Serapiglia; DP: Tristan Breeuwer; executive producer: Paul Globus. Narrator: Steve Anthony. 2D. Release: Summer 2021.

Apr '21	Jul '21								Jan '22	
Mars Cepha	DinoD Ever TrainT	Jazz	Tiger Ireland						Arctic OceaOd Sereng	WOW

Jazz Fest: A New Orleans Story*

Live performances and interviews from the 50th anniversary of the iconic festival. Imax Corporation; distributor: Imax Corporation; directors: Frank Marshall, Ryan Suffern; producers: Frank Marshall, Ryan Suffern, Sean Stuart. 2D. 94 minutes. Release: Summer/fall 2021.

Ireland

MacGillivray Freeman Films; distributor: MacGillivray Freeman Films; director: Greg MacGillivray; producer: Shaun MacGillivray; DPs: Brad Ohlund, Greg MacGillivray; script: Greg MacGillivray, Manchán Magan. Release: Fall 2021.

Tiger Tiger

White Mountain Films, Kennedy/Marshall Company, Imax Corporation; distributor: Imax Corporation; director: George Butler; producers: George Butler, Keero Birla, Caroline Alexander; DPs: Reed Smoot, Tom Hurwitz; script: Caroline Alexander; score: Mark Kilian; executive producers: Julian Robertson, Frank Marshall. Cast: Dr. Alan Rabinowitz. 2D. Release: October 2021.

The Arctic: Our Last Great Wilderness

Terra Mater Factual Studios; distributor: Cosmic Picture Distribution; directors: Myles Connolly, Florian Schulz; producers: Walter Köhler, Wolfgang Knöpfler; DP: Florian Schulz, Salomon Schulz; script: Myles Connolly, Florian Schulz, Vickie Curtis; score: Alex Heffes; executive producers: Tom Campion, Dinah Czezik-Müller, Michael Frenschkowski. Cast: Florian Schulz, Emil Herrara-Schulz, Nanuk Schulz, Silvan Schulz, Salomon Schulz, Jake Soplanda, Bernadette Demientieff, Siqiniq Maupin, Isaiah Horace. Narrators: Princess Daazhrai Johnson, Florian Schulz. Release: 2021.

Ocean Odyssey

Wild Pacific Media, Definition Films; distributor: K2 Studios; director: Nick Robinson; producers: Nick Robinson, Electra Manikakis, Peta Ayers; DPs: Nick Robinson, Jonathan Shaw ACS, Caspar Mazzotti; script: Nick Robinson, Peta Ayers; score: Hylton Mowday; executive producers: David Gross, Electra Manikakis, Nick Robinson. Cast: Silvia Earl. Release: 2021.

Serengeti

Definition Films; distributor: K2 Studios; director: Michael Dalton-Smith; producers: Michael Dalton-Smith, Karen Gordon; script: Michael Dalton-Smith, Karen Gordon. Release: 2021.

Wings Over Water

Dorsey Pictures, Archipelago Films; distributor: SK Films; directors, producers, script: Andrew Young, Susan Todd; DP: Andrew Young; executive producer: Chris Dorsey, Charlie S. Potter. Narrator: Michael Keaton. Release: early 2022.

The Last Glaciers*

Examines the fragile relationship between climate change, mountain environments, and humans. Leeson Media, Far North Productions; distributor: Imax Corporation; director, writer: Craig Leeson; producers: Craig Leeson, Malcolm Wood. 2D. Release: Spring 2022.

Secrets of the Sea

Howard Hall Productions, Oceanic Research Group; distributor: MacGillivray Freeman Films; directors: Howard Hall, Jonathan Bird; producers: Michele Hall, Christine Bird; DPs: Howard Hall, Jonathan Bird; script: Howard Hall; score: Bruce Zimmerman, Alan Williams; executive producers: Michele Hall, Christine Bird. Release: Spring 2022.

Space Explorers: The ISS Experience*

What's it like to live on the International Space Station and operate in microgravity conditions every day? Felix & Paul Studios; distributor: Felix & Paul Studios; directors, writers: Felix Lajeunesse, Paul Raphael; producers: Stephane Rituit, Jonathan Woods. Release: Spring 2022.

Cool Cities (wt)

K2 Studios; distributor: K2 Studios; director: Nick Robinson; producer: David Gross; executive producers: Robert Kresser, Mark Kresser, Mark Krenzien, David Gross. Cast: Tim Jarvis. Release: 2022.

Einstein's Incredible Universe (wt)

Cosmic Picture; distributor: tba; director: Daniel Ferguson; producers: Taran Davies, George Duffield, Daniel Ferguson; script: Daniel Ferguson, Mose Richards; DP: Reed Smoot. Release: 2022.

Fire Fighters

Sean Casey Productions; distributor: tba; director, DP: Sean Casey. 2D. Release: 2022.

Journey to the Great Mayan Reef

Milbrand Cinema; distributor: tba; director, producer, DP: Lance Milbrand; editor: Dave Choice; score: Icarus Music. Cast: Kathleen Dudzinski, Eldon Bolton. Release: 2022.

Koala

Amezdroz Media; distributor: MacGillivray Freeman Films; director, producer: Stephen Amezdroz; DP: Richard Fitzpatrick; writer: Sheryl Allen. Cast: Lizzie Corke, Shayne Neal, Jack Pascoe. Release: 2022.

New England and the Sea of Stories (wt)

Cosmic Picture; distributor: Museum of Science, Boston; director: Daniel Ferguson; producer: Taran Davies; script: Daniel Ferguson; DP: Reed Smoot. 2D. Release: 2022.

Refuge: America's Wildest Places

Tandem Stills + Motion; distributor: tba; director, producer: Ian Shive. Release: 2022.

SpaEx

CoolC EIU FireFi JTTGMR Koala NewEng Refuge Fungi SharkHe Mars2080 Yellows

The Secret Life of Fungi*

Hidden between the world of plants and animals, another world exists.

Stranger Than Fiction Films Pty Ltd, Definition Films, K2 Studios; distributor: K2 Studios; directors: Gisela Kaufmann, Paul Phelan; producers: Jo-ann McGowan, Jennifer Peedom, David Gross. Narrator: Merlin Sheldrake. Release: 2022.

Shark Heroes (wt)

Definition Films, K2 Studios; distributor: K2 Studios; director, writer: Amelia McCarten; producers: David Gross, **Sarah Beard**; DP: Jonathan Shaw ACS; executive producer: Mark Kresser. **Release: 2022.**

Mars 2080*

In the year 2080, a 17-year-old girl and her mother

decide to start over on an entirely new world: Mars. Imagine Entertainment; distributor: Imax Corporation; director: Eliza McNitt; producers: Brian Grazer, Ron Howard, Justin Wilkes; script: Eliza McNitt, Lynn Renee Maxcy. 2D. Release: Winter 2023.

Yellowstone: Life in Extremes

Grizzly Creek Films; distributor: tba; director: Thomas Winston. Release: tba.

DMR FILMS:

Title	Dist	Release
Black Widow	WDP	5/7/21
Free Guy	FOX	5/21/21
A Quiet Place Part II	PAR	5/28/21

F9 Fast & Furious	UP	6/25/21
The Suicide Squad	WB	8/6/21
Shang-Chi	WDP	9/3/21
Venom: Let There Be...	COL	9/24/21
Dune	WB	10/1/21
No Time to Die	MGM	10/8/21
Eternals	SONY	11/5/21
Top Gun: Maverick	PAR	11/19/21
Spider-Man: No Way Home	WDP	12/17/21
The King's Man	FOX	12/22/21
The Batman	DCE	3/4/22
Doctor Strange	WDP	3/25/22
Thor: Love and Thunder	WDP	5/6/22
Mission: Impossible 7	PAR	5/27/22
Jurassic World: Dominion	UP	6/10/22
Indiana Jones (untitled)	WDP	7/29/22
Avatar 2	FOX	12/16/22



Director, producer. Writer Andrew Young in a duck blind, filming for Wings Over Water.

GSCA Film Expo:

New Films, Films in Production, Films in Development

The **Giant Screen Cinema Association** held its 2021 Film Expo virtually over three days in the week of April 19. Our report on the professional development sessions will appear in a future issue, but here are details on the films presented.

New Films

Ancient Caves Oceanic Research Group Release Date: 3/7/2020 Format: 3D Length: 40 min. <i>Ancient Caves</i> brings science and adventure together as it follows paleoclimatologist Dr. Gina Moseley on a mission to unlock the secrets of the Earth's climate in the most unlikely of places: caves. Moseley and her team of cave explorers travel the world exploring vast underground worlds in search of stalagmite samples — geologic "fingerprints" — that reveal clues about the planet's climate history. Their quest leads them to some of the world's most remote caves, both above and below the water, in France, Iceland, the Bahamas, the U.S., and Mexico's Yucatan Peninsula. Together, they go where very few humans will ever go, revealing the incredible lengths scientists will go to study the unknown.	Astronaut: Ocean to Orbit Oceanic Research Group Release Date: 1/31/2021 Format: 2D Length: 20 min. In 2013, a critical life-support system on the International Space Station failed, requiring an immediate spacewalk to fix it. Astronaut Chris Cassidy made the repair and saved the space station. He was trained extensively for space walks here on Earth. But how do you train to work in microgravity here on Earth? <i>Astronaut: Ocean to Orbit</i> reveals the ways in which NASA uses underwater environments to simulate life and work in space. Join Chris Cassidy (current ISS Commander) as he floats in his space suit alongside a full-sized mock-up of the International Space Station in a giant underwater facility in Houston. Dive to the sea floor with astronaut Jeanette Epps as she lives underwater with fellow astronauts for ten continuous days at Aquarius Reef Base in Florida. Astronaut: Ocean to Orbit offers a fascinating look into the high-tech world of astronauts. Do you have the right stuff? Astronaut is being produced from the start in a 20-minute format (not cut down from 40). There is no 40-minute version. It was filmed 100% "dome-friendly."
Angkor: Lost Empire of Cambodia Definition Films Release Date: 10/1/2020 Format: 3D Length: 40 min. At the height of its power between the 9th and 15th centuries, Angkor was a resplendent city, considered the most extensive urban complex of the pre-industrial world. But by the late 16th century, the empire was in its death throes. The people of Angkor left not a single word explaining their kingdom's collapse. Come along this giant-screen adventure to unveil the mysteries behind this lost jewel of Cambodia!	
Antarctica BBC Studios Natural History Unit Release Date: 10/8/2020 Format: 2D Length: 45 min. It is a land of mystery and yet what happens here affects every single one of us. With never-before-seen footage, our story brings audiences to the farthest reaches of this wild and majestic continent. It is the coldest, driest and windiest place on Earth with the roughest oceans, and yet weird and wonderful creatures thrive here in astounding abundance. <i>Antarctica</i> is the perfect fit for the giant screen. Using the latest underwater filming techniques, dive beneath sea ice, more than six feet thick, to experience the alien world of its seafloor. Swim alongside playful seals, soar above mountain peaks and vast penguin colonies and witness the largest congregation of fin and humpback whales ever filmed. Although so remote from us, Antarctica and its surrounding Southern Ocean play a vital role for the entire planet, regulating ocean currents and sea levels; its wildlife-filled waters can absorb huge amounts of carbon. New science is revealing that dramatic changes are rapidly warming this pristine land of snow and ice. No one owns Antarctica, but it will take global cooperation and collaboration to protect it and ensure the future health of our planet.	
Apollo 11: Quarantine Statement Pictures, LLC Release Date: 1/28/2021 Format: 3D Length: 23 min. Todd Douglas Miller's <i>Apollo 11</i> took us straight to the heart of NASA's most celebrated mission, the one that first put men on the moon, and forever made Neil Armstrong and Buzz Aldrin into household names. Now his short film, <i>Apollo 11: Quarantine</i> offers immersive never-before-seen footage from the mission created for the giant screen. As the world celebrated their historic achievement, the crew's mission would not be complete until returning safely to Earth and undergoing a three-week medical quarantine. <i>Apollo 11: Quarantine</i> celebrates this lesser known story of personal sacrifice and stoic resolve, while offering an enduring message of hope during these unprecedented times. With exclusive clips from the film and special commentary by filmmaker Todd Miller, you will get behind-the-scenes of the Apollo 11 journey that the world hasn't experienced until now.	
Arctic: Our Last Great Wilderness, The Terra Mater Factual Studios GmbH Release Date: 5/28/2021 Format: 3D Length: 40 min. Imagine a place in America that is vast, wild and untouched, where some of the world's greatest wildlife spectacles unfold. For five years, National Geographic photographer Florian Schulz has lived in the Arctic to film this land and reveal it to audiences around the globe. Join Florian as he tracks the Porcupine Caribou herd on the longest animal migration on Earth, and witnesses polar bears denning along the coastal plain. The Arctic National Wildlife Refuge, located in the northeastern corner of Alaska, is one of the wildest places left on the planet - a symbol of wilderness that few have ever seen. The film will feature the first cinematic exploration of this little known land allowing people to experience a world that has evolved intact and wild since the beginning of time.	
Asteroid Hunters Imax Corporation Release Date: 10/8/2020 Format: 3D Length: 38 min. Venture into deep space for a fascinating look at asteroids, their cosmic origins, and the potential threat they pose to our world. Asteroid Hunters introduces asteroid scientists — the best line of defense between Earth and an asteroid's destructive path — and reveals the cutting-edge tools and techniques they use to detect and track asteroids, and the technology that may one day protect our planet. The effects of an asteroid impact could be catastrophic, and while the current probability of an event in our lifetime is low, the potential consequences make the study of asteroids an incredibly important area of scientific research. Witness the latest in planetary defense and how science, ingenuity, and determination combine to explore the world's most preventable natural disaster.	
	Back From the Brink Sean Casey Productions Release Date: 10/25/2019 Format: 3D Length: 40 min. Experience on the giant screen the remarkable true story of three animal species rescued from brink of extinction. Meet the scientists, park rangers, and students working to save endangered animals around the world. Discover how California's enchanting channel island fox is rescued from an invasion of golden eagles, the fastest recovery of a species in the history of animal conservation. Join the former hunters of one of the world's most endangered primates, the golden monkey, who now protect them in the fabled mountains of China's Yunnan Province. Witness the wondrous migration of the Christmas Island red crab, and marvel at their recovery from a crazy yellow ant infestation in one of the most successful bio-control experiments ever undertaken. Join this remarkable and heartfelt adventure to save endangered species around the world.
	Cephalopods: Aliens of the Deep Saint Thomas Productions Release Date: 4/1/2021 Format: 3D Length: 40 min. Shot over three years across the globe through stunning underwater cinematography, this film presents an intimate portrait through macro-photography of the cephalopods (Greek meaning head foot). Journey through the magical world of these fascinating aquatic species and discover their unique physiology and what makes them survive against all odds.
	Dino Dana: The Movie Sinking Ship Entertainment Release Date: 3/31/2021 Format: 2D Length: 40 min. From multi-E Emmy Award-winning Sinking Ship Entertainment comes <i>Dino Dana: The Movie</i>, an action-packed dinosaur adventure that follows 10-year-old Dana as she tries to solve dino experiment 901: where are all the kid dinos? But before she can complete her experiment, Dana's new upstairs neighbor Mateo finds her magical Dino Field Guide, which allows him to see dinosaurs in real life too. This discovery kicks off a prehistoric journey bigger than anything Dana has ever faced before. When Mateo is dino-napped by a T.rex, who thinks he's one of her babies, it's up to Dana, her sister Saara, and Mateo's older step-brother Jadel to get him back. Along the way, Dana and her friends will race through a stampede of triceratops, take on a spinosaurus, get beak to nose with a quetzalcoatlus, and come to realize that family, whether human or Jurassic, is the most important quest of all.
	Dinosaurs of Antarctica Giant Screen Films Release Date: 2/14/2020 Format: 3D Length: 40 min. From the Permian through the Jurassic, journey to the south polar landscapes of Antarctica hundreds of millions of years ago. Roam the primitive forests and thick swamps with bizarre dinosaurs and colossal amphibians. Enter a surreal world of bug-eyed giants and egg-laying mammals, where survival means enduring the sunless, six-month polar winter surrounded by meat-eaters with night vision. Join intrepid Antarctic scientists on a quest to understand the ice continent's profound transformation, and to predict the future as humans drive dramatic change. Welcome to the lost prehistoric world of Gondwana. Welcome to Antarctica.
	Everest MacGillivray Freeman Films, Inc. Release Date: 5/31/2021 Format: 2D Length: 44 min. In this special re-release of the smash hit film <i>Everest</i>, audiences will revisit the harrowing and inspirational ascent of the world's tallest mountain with a team of four international climbers who find hope, beauty, and triumph in the wake of tragedy. When <i>Everest</i> was first released in 1998, it was the fastest rollout ever for a giant screen film and landed on <i>Variety's</i> Top ten Box Office list. The film shattered all previous attendance records and went on to become the highest grossing giant-screen documentary of all time. Digitally remastered in 16K resolution and with new behind-the-scenes footage, this special edition will allow a new generation to experience this moving, critically acclaimed film.

<u>Into America's Wild</u> MacGillivray Freeman Films, Inc. Release Date: 2/14/2020 Format: 3D Length: 40 min.	Narrated by Academy Award winner Morgan Freeman, <i>Into America's Wild</i> is a visually stunning cross-country adventure that celebrates the hidden wonders of nature. A non-stop ride by kayak, bike, train, hot air balloon, zipline, and more, <i>Into America's Wild</i> explores some of the most beautiful landscapes of North America, from the wilds of Alaska and the lush Oregon coast to the ancient canyons of the Southwest and the rolling hills of the Appalachian Trail. Setting out on this journey are two trailblazers — pioneering Native American astronaut John Herrington and Alaskan pilot Ariel Tweto — who share a passion for connecting people to experiences in the wild. As they wind their way through the scenic byways, ancient homelands, secret gems, and hidden trails of America, viewers will discover the special human connection we all share with the natural world.	<u>Ocean Odyssey</u> Wild Pacific Media Release Date: 2021 Format: 3D Length: 40 min.	Five hundred million years ago life left this blue womb and colonized the land, but we are still intricately linked to the ocean. Our climates, coastlines, ecosystems, and economies are tied to the perpetual movement of water between continents. The great ocean currents are the arteries and veins of Planet Earth! This is the story of one particularly fascinating flow: the East Australian Current, a massive oceanic river that stretches the length of Australia's east coast.
<u>Ireland</u> MacGillivray Freeman Films, Inc. Release Date: 5/31/2021 Format: 3D Length: 40 min.	Worldwide audiences will fall in love with Ireland as they experience the immense natural beauty and rich cultural heritage of the beautiful Emerald Isle. Amid such awe-inspiring locations as Giant's Causeway and the Cliffs of Moher, the film follows Irish writer Máiréad Magan on his quest to reconnect people of Irish heritage from around the world with their land, language, and stories. Magan is joined by four Irish teens and violinist Patricia Treacey on a cross-country journey from Dublin to Belfast, Kilkenny to Blarney Castle, and to the spectacular islands of Skellig Michael, where they meet scientists studying the country's basking sharks and puffin population. At each stop along the way, audiences will rediscover the vibrant traditions and sacred customs of this ancient land, made new again.	<u>Search for Snow, The</u> Ouragan Films Release Date: 1/31/2021 Format: 3D Length: 40 min.	Snow holds a unique place in our lives and our imaginations, encompassing magic, nostalgia, fear, and enigma. Now it has arrived at a defining moment in the age of the Anthropocene: for much of the world there will be a before and after the disappearance of snow. "Will there still be a white Christmas?" is an increasingly desperate question in the era of climate change. Winters are shortening. Global warming is disrupting the movement of winter storm systems in the northern hemisphere, causing brutal localized snowfall in some places and in others a "shortage." Fauna and flora are being disrupted: in the Alps, the snowpack is decreasing and with it, the ability of animals and plants to cope with winter. Men and women whose economic survival depends on snow are increasingly helpless. Ski resorts are resorting to artificial snow to stay open. The fear that this beauty may disappear inspired the film: a celebration of the wonder of the snow, in all its forms.
		<u>Serengeti</u> Definition Films Release Date: 7/31/2021 Format: 3D Length: 40 min.	Life happened in the Serengeti on an unprecedented scale. It's home to most of Africa's iconic animals, and hosts one of the world's greatest natural events: the annual wildebeest migration. Nature has orchestrated a perfect symphony in which every species has a very distinct role to play in a larger story: the balance of an entire ecosystem. We'll see it through the eyes of the youngest members of our animal cast as they imitate their parents, and learn about the mighty roles they'll play. Prepare to be awed by this immersive giant-screen film about how nature works in one of the world's greatest ecosystems.

Films in Production

<u>Black Widow</u> Marvel Studios Release Date: 7/9/2021 Format: 2D Length: 120 min.	At birth the Black Widow (aka Natasha Romanova) is given to the KGB, which grooms her to become its ultimate operative. When the USSR breaks up, the government tries to kill her as the action moves to present-day New York, where she is a freelance operative.	<u>No Time to Die</u> Metro-Goldwyn-Mayer Release Date: 10/8/2021 Format: 2D Length: 120 min.	In <i>No Time to Die</i> , Bond has left active service and is enjoying a tranquil life in Jamaica. His peace is short-lived when his old friend Felix Leiter from the CIA turns up asking for help. The mission to rescue a kidnapped scientist turns out to be far more treacherous than expected, leading Bond onto the trail of a mysterious villain armed with dangerous new technology.
<u>Jazz Fest</u> Imax Corporation Release Date: 9/1/2021 Format: 2D Length: 94 min.	<i>Jazz Fest: A New Orleans Story</i> weaves together live performances and interviews from the 50th anniversary of the iconic festival, featuring some of the biggest names in the music industry, along with a wealth of archival documentary footage from the past half century. This film not only presents the music fest in all of its beauty, madness, and glory, but also delves deep into the rich culture of the Big Easy. Featuring Bruce Springsteen, Jimmy Buffett, Earth Wind & Fire, Al Green, Katy Perry, Pitbull, Irma Thomas, Preservation Hall Jazz Band, Aaron Neville, Herbie Hancock, the Revivalists, Trombone Shorty, the Marsalis Family, and many more.	<u>Secret Life of Fungi, The</u> Stranger Than Fiction Films Release Date: 2022 Format: 3D Length: 40 min.	All life on Earth is connected by a great mystery we are only just beginning to unravel. Hidden between the world of plants and animals, another world exists: <i>The Secret Life of Fungi</i> . We'll begin in the mysterious world of the forest floor, where fungi are the central players in nature's story of birth, death, and rebirth to discover that life as we know it simply would not exist without them. Join acclaimed British biologist Dr. Merlin Sheldrake on a quest to find an incredibly precious blue mushroom, against the backdrop of Tasmania's ancient Tarkine rainforest. Merlin will show us some of the grandest and strangest organisms ever discovered, showcased through jaw-dropping time-lapse cinematography, in a landscape largely unchanged from the time of the dinosaurs. Fungi have important lessons to teach humanity about survival through cooperation. Indeed, these incredible lifeforms may hold the key to solving some of humanity's most urgent problems. With millions more species to discover, our journey into the secret world of fungi has only just begun.
<u>Koala</u> Amezdroz Media Release Date: 2022 Format: 3D Length: 40 min.	In December 2019, almost a quarter of the world's koala population perished in the Australian bush fire crisis. This scale of devastation in a single species is almost unprecedented. If koalas are to have a future, we need to learn to better manage their natural habitats, raise awareness and educate as many people as we can about these much-loved marsupials. Storytelling is one of the most engaging and effective ways to educate. It transcends demographics, generations, and even cultures. And today, the visual experience of giant screen and IMAX is unequalled. Coupled with purposeful narrative and shared with an audience eager to better understand the world around them, the documentary medium can help create a more certain future for koalas.	<u>Secrets of the Sea</u> Oceanic Research Group Release Date: 3/31/2022 Format: 3D Length: 40 min.	<i>Secrets of the Sea</i> is a giant-screen film featuring the ocean's strangest and most spectacular creatures. Captured in locations including the Philippines, Indonesia, Mexico, the Caribbean, and the Eastern Pacific, the film will demonstrate the critical importance of marine biodiversity by depicting the astonishing ways different marine species interact. Few outside the scientific community understand why high biodiversity is critical to the health of ecosystems. In the ocean, each species is dependent upon many others for survival. Giant-screen audiences will find many of these interactions between species unexpected and surprising. In <i>Secrets of the Sea</i> , audiences will learn that the removal of one species affects many others. If too many species are removed, entire ocean ecosystems can collapse. From award-winning underwater filmmakers Howard and Michele Hall (<i>Into The Deep</i> , <i>Deep Sea 3D</i> , <i>Under the Sea 3D</i>) and Jonathan Bird (<i>Ancient Caves</i>) comes an exciting new giant-screen film, shot specifically for the IMAX Dome, and featuring incredible underwater cinematography from around the world, a strong environmental message and powerful score.
<u>The Last Glaciers</u> Leeson Media Release Date: 3/31/2022 Format: 3D Length: 40 min.	<i>The Last Glaciers</i> captures the fragility of the natural world, the impact humans have on our life-support systems, and the friendship, personal challenges and tragedies experienced by the explorers during their journey into extreme environments. The film seeks to break down the science of climate change in an easy-to-understand narrative which captures the importance of glaciers and mountain ecosystems to humanity's very existence. Shot on ultra-high-definition cameras in difficult locations, it features breathtaking cinematography and original music composed by international musicians Above & Beyond. <i>The Last Glaciers</i> is a compelling story that is at once heart-wrenching, eye-opening, and thrilling.	<u>Shark Heroes</u> Definition Films Release Date: 2022 Format: 3D Length: 40 min.	Sharks are the perfect apex predator, unchanged and untouched by time. Our species' histories converge at the intersection of fascination and fear. <i>Shark Heroes</i> will take audiences on scientific journey of discovery into their world of the deep abyss as we seek to understand and respect this amazing ruler of the sea.
<u>Mars 2080</u> Imagine Entertainment Release Date: 2023 Format: 2D Length: 40 min.	In the year 2080, a 17-year-old girl and her mother become climate refugees when a hurricane destroys their family home. Faced with finding a new place to live, they make the courageous decision to start over on an entirely new world: Mars. They leave the only civilization they've ever known to embark on a dangerous journey to the red planet where every aspect of life is something new to experience; technology is infused with artificial intelligence, architecture is adaptable to every inhabitant's liking, and the environment outside the city walls is both dangerous and full of adventure. As they begin to adapt to Martian life and become immersed in a new society, they deepen their bond and rediscover the meaning of home.	<u>Space Explorers - The ISS Experience</u> Felix and Paul Studios Release Date: 3/31/2022 Format: 3D Length: 40 min.	What's it like to live on the International Space Station (ISS) and operate in microgravity conditions every day? Find out in <i>Space Explorers: The ISS Experience</i> as you join astronauts from Japan, Canada, Italy, Russia, UAE, and the United States in a life-changing journey aboard the ISS. Shot entirely in space over two years using native 3D stereoscopic cameras, this production is the biggest media project ever filmed in space. Experience this space spectacle on a giant screen in full 3D and in domes.

Films in Production, cont'd

Films in Development

Tiger Tiger White Mountain Films Release Date: 10/31/2021 Format: 3D Length: 40 min.	<i>Tiger Tiger: An IMAX Original Documentary</i> will take audiences into the ancient, threatened kingdom of the Royal Bengal Tiger of the Sundarbans, at the southernmost edge of the Bengal Delta. We are excited to bring an immersive adventure — glimpses of the rarely seen tiger on the majestic scale it deserves, the mysterious mangrove forests of the Sundarbans, and the last journey of a beloved and fearless conservation icon — to an IMAX screen near you.	Blue Dot Zero Moonraker VFX Ltd Release Date: 2021 Format: 3D Length: 40 min.	Throughout the history of the Earth, life has faced monumental struggles. From mass extinctions to a poisonous atmosphere, from a frozen planet to a viral pandemic. But each time, life has found a way through. And not only a way through but using the past to improve and evolve in the future. <i>Blue Dot Zero</i> tells the amazing story of the key moments in Earth's history where life has hung in the balance and then come back in a more advanced and evolved way. As we look at how we got to today, what can we learn about our own future and what will come next?
Top Gun: Maverick Paramount Pictures Corporation Release Date: 11/19/2021 Format: 2D Length: 120 min.	After more than thirty years of service as one of the Navy's top aviators, Pete "Maverick" Mitchell (Tom Cruise) is where he belongs, pushing the envelope as a courageous test pilot and dodging the advancement in rank that would ground him.		
Train Time Stephen Low Company Release Date: 7/31/2021 Format: 2D Length: 45 min.	Join the crew of a giant freight train for an eye-popping, music-infused journey across America. Filmed in the world's largest film format from the sky and from aboard giant freights, <i>Train Time</i> delivers an unprecedented 'being-there' experience. Aboard a train hundreds of cars in length and strung for miles, we cross a network of steel running through vast changes in topography — across prairie, through forests, mountains and desert, into cities and towns — from the Great Lakes to the Pacific shore. In the Control Center discover railroading on a scale rarely seen and witness the enormous effort of high-tech coordination that keeps satellite-connected locomotives and freight of all kinds moving to myriad destinations. Weaving together present green-tech and classic steam locomotives, grit, glamour and glorious landscapes, <i>Train Time</i> immerses viewers in a grand tapestry of railroading, revealing, along the way, the art and science of running these amazing trains. Shot entirely in 15/70 film.		
Wings Over Water Dorsey Pictures Release Date: 3/31/2022 Format: 3D Length: 42 min.	As the glaciers retreated, they left an astounding gift of connected rivers, lakes, and wetlands across the heartland of North America. Today, these largely unknown water highways remain an oasis for sustaining wildlife, from the herds of bison that still roam the Great Plains to vital honeybees that pollinate our crops and especially for the magnificent birds that migrate along these "flyways." Narrated by acclaimed actor Michael Keaton, <i>Wings Over Water</i> tells the story of the epic journeys of three amazing bird families — the sandhill crane, the yellow warbler, and the mallard duck — with never-before-seen close-ups of their fascinating behaviors. Audiences will be captivated by the triumphs and challenges of these remarkable creatures as they defy all odds and soar across mountains, deserts, cities and forests, searching for water and safe havens to rest, refuel and raise their young as they head home.		
		Enchanted Greece White Mountain Films Release Date: 2024 Format: 3D Length: 40 min.	White Mountain Films presents <i>Enchanted Greece</i> , an epic giant-screen adventure that takes viewers on a quest to the oracles of ancient Greece, and an exploration of the ways in which people of the past confronted their fears about the future. What lies ahead? What does the future hold? Throughout all of our history, we humans have yearned to catch a glimpse of what lies before us. What a comfort it would be to know in these anxious times! <i>Enchanted Greece</i> will be filmed with the help of Unreal Engine — the world's most advanced real-time 3D creation tool — allowing us to conjure the past in ways never imagined before, while taking audiences on a Giant-screen journey across the spectacular landscape of Greece and to its celebrated oracles.
		Sand-Eating Sharks Saint Thomas Productions Release Date: 2021 Format: 2D Length: 40 min.	Off the coast of Brazil, in the tropical paradise of Fernando Do Noronha, swims a female lemon shark called Manoela. From early childhood to adulthood, her extraordinary senses allow her to detect scents, sounds, and even the tiny electric fields of her prey. In particular, she specializes in a hunting technique that has only ever been observed in this spot: hunting sardines in the waves. The confusion created in the sandy shores has given her species the local name, "papa-areia" — sand eaters! Catch the wave and swim among these clever hunters.

(from **THE BIZ** on page 5)

two married in 1982. At about the same time, they began working on the IMAX space films.

The *Globe and Mail* said, "Informally, she was the Imax team's diplomat, whose unaffected style was key to winning the trust of the astronauts. The ice breaker came right at the start, while shooting a press conference with Columbia's commander, **John Young**, and pilot **Robert Crippen**. After a succession of solemn, scientific questions from major media outlets, Ms. Ferguson simply asked the pair, 'Is it fun to be an astronaut?'"

"'It just broke the tension,' said Imax creative director **Jackson Myers**, son of the late [Toni] **Myers**. 'You can see this super-wide smile on Bob Crippen's face. Then they both completely let their guards down and start talking about how fun it is. It changed the whole mood.' That was classic Phyllis, Mr. Myers said. 'She'd just ask what she thought.' He said that display

of genuine curiosity helped establish Imax's 40-year-long relationship with NASA. 'The astronauts came to see her and my mom and Graeme as the right people to tell their story.'"

Myers is preparing a film on Phyllis Ferguson's life that will be available later this year.

In Memoriam: Micky Erbe

Composer **Micky Erbe** died of cancer on April 11 in Toronto. He was 74. Along with composing partner **Maribeth Solomon**, Erbe wrote the scores for 12 giant-screen films, including all of the IMAX space films, from 1982's *Hail Columbia!* to *A Beautiful Planet* in 2016.

Born in Passaic, NJ, Erbe took up the trumpet as a young man and toured as a musician for several years before settling in Toronto, where he met Solomon. In addition to the GS films, the pair wrote scores for dozens of TV movies and series, winning Gemini awards for *Adderly*,

Street Legal, and *Earth: Final Conflict*, and being nominated for an Emmy for the main title theme of the last.



Micky Erbe

Bookings: April 2021 by Film

144 bookings of 67 films in 68 theaters

Film	Theater	Open	Close	Film	Theater	Open	Close	Film	Theater	Open	Close
AfricAdv	Katowice CC	10/1/20	9/30/21	ExpChesa	Harrisburg	3/21		MOTUW	Peoria RM	4/18/21	
	Krakow CC	10/1/20	9/30/21		Saint Augustine	3/21			MounQues	Hangzhou LCSTM	2/21
	Lodz CC	10/1/20	9/30/21		FlyMons	2/21			Niagara	Niagara Can DCI	7/23/20
	Poznan CC	10/1/20	9/30/21		FOTB	Saint Augustine	1/10/21	6/30/21	NPA	Grand Rapids Cel	
	Warsaw CC	10/1/20	9/30/21			Victoria RBCM	2/6/21	6/30/21		Harrisburg	3/21
AGWN	Wroclaw CC	10/1/20	9/30/21	G3DNW	Katowice CC	10/1/20	9/30/21	Ocean3D	Lansing Cel		
	Las Palmas	11/10/20	6/30/21		Kolkata SC	2/21			Kaohsiung NSTM	10/31/20	6/30/21
AmazAdve	Oulu	2/9/21	7/7/21		Krakow CC	10/1/20	9/30/21		Ozarks	Branson	7/1/20
	Chantilly		12/31/21		Lehi	4/23/21	4/22/22		Pandas	Saint Augustine	3/21
AMMM	Chicago MSI		9/30/21		Lodz CC	10/1/20	9/30/21	PlanPowe	Sinsheim	6/1/20	12/31/21
	Victoria RBCM	2/6/21	6/30/21	GBR	Louisville KSC	7/1/20	8/30/22		Boston NEA	8/1/20	
AncCaves	Hangzhou LCSTM	2/21			Poznan CC	10/1/20	9/30/21		Louisville KSC	3/19/21	4/8/21
	Orlando SC	2/21			Warsaw CC	10/1/20	9/30/21		Melbourne MV	1/4/21	
Angkor	Chattanooga TA	4/23/21	4/25/21		Wroclaw CC	10/1/20	9/30/21		Omaha Zoo	11/20	
	Saint Paul SMM	2/26/21		GCA	Harrisburg	3/21		SpaceNex	Orlando SC	11/20	
Animalop	Taichung NMNS	10/1/20	9/30/21		Chicago MSI	8/1/20			Hangzhou LCSTM	2/21	
	Wichita EP	3/21			Harrisburg	3/21			Chicago MSI	8/1/20	
AntarcSK	Birmingham AL	12/18/20	6/18/21		Kagoshima MSC	4/1/21			Dearborn THF	2/21	
	Hague	10/8/20			Melbourne MV	2/21			Denver MNS	2/21	
AOTO	London SM	12/9/20	6/30/22	Hubble	Grand Canyon DCI	9/20	12/21	TA	Detroit MSC	2/21	
	Phoenix ASC	2/21			Grand Rapids Cel				Shreveport	3/21	
AsterHunt	Saint Augustine	3/21			Lansing Cel				Singapore SC	10/20	
	Saint Louis SC	10/23/20	5/31/21		Boston NEA	8/1/20			Cleveland	2/21	
BackWild	Salt Lake City Clark	3/1/21			HCBTD	7/21/20		TOTIA	Peoria RM	4/18/21	
	Boston NEA	8/1/20	6/30/21	IAW	HiddPac	2/21			Cleveland	2/21	
BFTB	Cincinnati MC	11/20	4/30/21		HidUniv			TTA	Tianjin STM	3/21	
	Hampton VASSC	12/18/20	12/31/21		Los Angeles CSC	4/5/21	4/25/21		Grand Rapids Cel		
BTBW	Hastings	10/8/20	10/16/21		Grand Rapids Cel			TurtOdys	Lansing Cel		
	Saint Augustine	1/10/21	6/30/21		Lansing Cel				Austin TSHM	9/9/20	5/31/21
Bugs	Shanghai STM 3D		6/21	IncrPred	Dearborn THF	2/21			Boston NEA	10/20	6/21
	Dearborn THF	2/21			Denver MNS	2/21			Chattanooga TA	7/17/20	12/31/21
COTS	Hastings	2/21			Harrisburg	3/21			Hangzhou LCSTM	2/21	
	Saint Louis SC	3/21			Hutchinson	3/13/21			Orlando SC	2/21	
Cuba	Fort Lauderdale	2/21			Beijing 3D CSTM	3/1/21		UnderSea	Victoria RBCM	2/6/21	7/31/21
	Raleigh	3/21		Jerusale	Hangzhou LCSTM	2/21			Wichita EP	3/21	
DOA	Beijing 3D CSTM	2/15/21	2/14/22		Saint Augustine	3/21			Los Angeles CSC	4/5/21	4/25/21
	Hangzhou LCSTM	2/21			Tianjin STM	3/21			Saint Augustine	3/21	
Dolphins	Memphis Pink	2/13/21			Mobile	2/21		Vikings	Shanghai STM 3D	3/21	
	Kaohsiung NSTM	10/31/20	6/30/21		Raleigh	3/21			Tianjin STM	3/21	
DreamBig	Mobile	2/21		JTS	Tianjin STM	3/21			Melbourne MV	11/19/20	3/31/22
	Phoenix ASC	10/1/20	12/31/21		Regina	3/21			New York AMNH	9/28/20	6/30/21
	Salt Lake City Clark	3/1/21			Hangzhou LCSTM	2/21			Richmond SMV	12/21/20	6/30/21
	Shanghai STM 3D	3/21			Lehi	7/23/20	4/9/21	WildAfri	Saint Paul SMM	2/26/21	
	Shanghai STM Dome	3/21		MAOOb	Edmonton TWS	10/22/20			Peoria RM	4/18/21	
	Taichung NMNS	1/1/21	12/31/21		Kagoshima MSC	4/21			Hangzhou LCSTM	2/21	
	Mumbai NSC	11/10/20			Chicago MSI	3/7/21			Melbourne MV	2/21	
	Grand Rapids Cel				Orlando SC	2/21			Peoria RM	4/18/21	
	Lansing Cel							Yell	Yellowstone	12/20	

April 2021 by Theater

Theater	Film	Open	Close	Theater	Film	Open	Close	Theater	Film	Open	Close
Austin TSHM	TurtOdys	9/9/20	5/31/21	Denver MNS	IAW	2/21		Harrisburg	MA	2/21	
Beijing 3D CSTM	Bugs	2/15/21	2/14/22		SupDogs	2/21			MounQues	2/21	
Birmingham AL	IncrPred	3/1/21			HiddPac	2/21			SpaceNex	2/21	
	AntarcSK	12/18/20	6/18/21		IAW	2/21			TurtOdys	2/21	
Boston NEA	BackWild	8/1/20	6/30/21		SupDogs	2/21		Hastings	WOTA	2/21	
	GWS	8/1/20		Detroit MSC	SupDogs	2/21			ExpChesa	3/21	
Branson	SeaLion	8/1/20			MAOOb	10/22/20			GBR	3/21	
	TurtOdys	10/20	6/21		BTBW	2/21			GBRF	3/21	
Chantilly	Ozarks	7/1/20			GC	9/20	12/21		IAW	3/21	
	AmazAdve		12/31/21	Grand Rapids Cel	DreamBig			Hutchinson	NPA	3/21	
Chattanooga TA	AncCaves	4/23/21	4/25/21		GCA				BackWild	10/8/20	10/16/21
	TurtOdys	7/17/20	12/31/21		HidUniv				BFTB	2/21	
Chicago MSI	AmazAdve		9/30/21		HumpbWha			Kagoshima MSC	IAW	3/13/21	
	GBRF	8/1/20			NPA				GBRF	4/1/21	
Cincinnati MC	MJTMM	3/7/21		Hague	TTA				Mars1001	4/21	
	SupDogs	8/1/20			AntarcSK	10/8/20		Kaohsiung NSTM	DOA	10/31/20	6/30/21
Cleveland	BackWild	11/20	4/30/21		BackWild	12/18/20	12/31/21		Ocean3D	10/31/20	6/30/21
	TA	2/21			AMMM				AfricAdv	10/1/20	9/30/21
Dearborn THF	TOTIA	2/21			COTS	2/21			G3DNW	10/1/20	9/30/21
	BFTB	2/21			IncrPred	2/21			FlyMons	2/21	

Theater	Film	Open	Close	Theater	Film	Open	Close	Theater	Film	Open	Close
Kolkata SC	G3DNW	2/21		Omaha Zoo	SeaLion	11/20		Salt Lake City Clark	AsterHunt	3/1/21	
Krakow CC	AfricAdv	10/1/20	9/30/21	Orlando SC	AMMM	2/21			DOA	3/1/21	
	G3DNW	10/1/20	9/30/21		MOF	2/21		San Simeon DCI	HCBDT	7/21/20	
Lansing Cel	DreamBig				SeaLion	11/20		Shanghai STM 3D	BackWild		6/21
	GCA				TurtOdys	2/21			DOA	3/21	
	HidUniv			Oulu	AGWN	2/9/21	7/7/21		UnderSea	3/21	
	HumpbWha			Peoria RM	MOTUW	4/18/21		Shanghai STM Dome	DOA	3/21	
	NPA				TA	4/18/21		Shreveport	SupDogs	3/21	
	TTA				WildAfri	4/18/21		Singapore SC	SupDogs	10/20	
Las Palmas	AGWN	11/10/20	6/30/21		WWDP3D	4/18/21		Sinsheim	PlanPowe	6/1/20	12/31/21
Lehi	G3DNW	4/23/21	4/22/22	Phoenix ASC	AOTO	2/21		Taichung NMNS	Angkor	10/1/20	9/30/21
	MA	7/23/20	4/9/21		DOA	10/1/20	12/31/21		DOA	1/1/21	12/31/21
Lodz CC	AfricAdv	10/1/20	9/30/21	Poznan CC	AfricAdv	10/1/20	9/30/21	Tianjin STM	JIAC	3/21	
	G3DNW	10/1/20	9/30/21		G3DNW	10/1/20	9/30/21		JTS	3/21	
London SM	AntarcSK	12/9/20	6/30/22	Raleigh	BTBW	3/21			TOTIA	3/21	
Los Angeles CSC	Hubble	4/5/21	4/25/21		JTS	3/21		Victoria RBCM	Vikings	3/21	
	UnderSea	4/5/21	4/25/21	Regina	JTTSP	3/21			AmazAdve	2/6/21	6/30/21
Louisville KSC	G3DNW	7/1/20	8/30/22	Richmond SMV	Volcanoes	12/21/20	6/30/21		FOTB	2/6/21	6/30/21
	SeaLion	3/19/21	4/8/21	Saint Augustine	AsterHunt	3/21			TurtOdys	2/6/21	7/31/21
Melbourne MV	GBRF	2/21			BackWild	1/10/21	6/30/21	Warsaw CC	AfricAdv	10/1/20	9/30/21
	SeaLion	1/4/21			ExtrWeat	3/21			G3DNW	10/1/20	9/30/21
	Volcanoes	11/19/20	3/31/22		FOTB	1/10/21	6/30/21	Wichita EP	Animalop	3/21	
	WWDP3D	2/21			Jerusale	3/21			TurtOdys	3/21	
Memphis Pink	Cuba	2/13/21			Pandas	3/21		Wroclaw CC	AfricAdv	10/1/20	9/30/21
Mobile	DOA	2/21		Saint Louis SC	UnderSea	3/21			G3DNW	10/1/20	9/30/21
	JTS	2/21			AsterHunt	10/23/20	5/31/21	Yellowstone	Yell	12/20	
Mumbai NSC	Dolphins	11/10/20		Saint Paul SMM	BFTB	3/21					
New York AMNH	Volcanoes	9/28/20	6/30/21		AncCaves	2/26/21					
Niagara Can DCI	Niagara	7/23/20			Volcanoes	2/26/21					

Key to Film Abbreviations

Film	Title	Year	Dist	Film	Title	Year	Dist	Film	Title	Year	Dist
AfricAdv	African Adventure 3D	2007	3D	nWP	MOF	Magic of Flight, The	1997	MFF			
AGWN	Australia's Great Wild North	2018		K2	MOTUW	Mysteries of the Unseen World	2013	3D	CPD		
AmazAdve	Amazon Adventure	2017	3D	SKF	MounQues	Mountain Quest	2018		K2		
AMMM	Amazing Mighty Micro Monsters 3D	2016	3D	nWP	Niagara	Niagara: Miracles, Myths, and Magic	1987		DCI		
AncCaves	Ancient Caves	2020	3D	MFF	NPA	National Parks Adventure	2016	3D	MFF		
Angkor	Angkor: Lost Empire of Cambodia	2020	3D	K2	Ocean3D	Ocean 3D	dev	3D	unk		
Animalop	Animalopolis	2008	3D	K2	Ozarks	Ozarks: Legacy and Legend	1993		IMAX		
AntarcSK	Antarctica	2020		SKF	Pandas	Pandas	2018	3D	IMAX		
AOTO	Astronaut: Ocean to Orbit	2021		MFF	PlanPowe	Planet Power	2018	3D	nWP		
AsterHunt	Asteroid Hunters	2020	3D	IMAX	SeaLion	Sea Lions: Life by a Whisker	2020	3D	K2		
BackWild	Backyard Wilderness	2018	3D	SKF	SpaceNex	Space Next 3D	2015	3D	B&D		
BFTB	Back From the Brink	2019	3D	CPD	SupDogs	Superpower Dogs	2019	3D	IMAX		
BTBW	Born to Be Wild	2011	3D	IMAX	TA	Tornado Alley	2011	3D	GSF		
Bugs	Bugs!	2003	3D	SKF	TOTIA	Titans of the Ice Age	2013	3D	GSF		
COTS	Creatures of the Seasons	1990		DTI	TTA	To the Arctic	2012	3D	MFF		
Cuba	Cuba	2019	3D	GSF	TurtOdys	Turtle Odyssey	2018	3D	SKF		
DOA	Dinosaurs of Antarctica	2020	3D	GSF	UnderSea	Under The Sea 3D	2009	3D	IMAX		
Dolphins	Dolphins	2000		MFF	Vikings	Vikings	2004		GSF		
DreamBig	Dream Big: Engineering Our World	2017	3D	MFF	Volcanoes	Volcanoes: The Fires of Creation	2018	3D	SKF		
ExpChesa	Expedition Chesapeake	2019		B&D	WildAfri	Wild Africa 3D	2015	3D	GSF		
ExtrWeat	Extreme Weather	2016	3D	CPD	WOTA	Wonders of the Arctic	2014	3D	GSF		
FlyMons	Flying Monsters 3D	2011	3D	CPD	WWDP3D	Walking With Dinosaurs 3D	2014	3D	GSF		
FOTB	Flight of the Butterflies	2012	3D	SKF	Yell	Yellowstone	1994		GSF		
G3DNW	Galapagos 3D: Nature's Wonderland	2014	3D	nWP							
GBR	Great Barrier Reef, The	1981		SMM							
GBRF	Great Bear Rainforest	2019	3D	MFF							
GC	Grand Canyon: The Hidden Secrets	1985		DCI							
GCA	Grand Canyon Adventure: River at Risk	2008	3D	MFF							
GWS	Great White Shark	2013	3D	GSF							
HCBDT	Hearst Castle: Building the Dream	1996		DCI							
HiddPac	Hidden Pacific	2019	3D	GSF							
HidUniv	Hidden Universe	2013	3D	MFF							
Hubble	Hubble: Galaxies Across Space and Time	2004		STSI							
HumpbWha	Humpback Whales	2015	3D	MFF							
IAW	Into America's Wild	2020	3D	MFF							
IncrPred	Incredible Predators	2016	3D	GSF							
Jerusale	Jerusalem	2013	3D	CPD							
JIAC	Journey into Amazing Caves	2001		MFF							
JTS	Journey to Space	2015	3D	K2							
JTTSP	Journey to the South Pacific	2013	3D	MFF							
MA	Museum Alive 3D	2016	3D	nWP							
MAOOB	Mountain Adventure: Out of Bounds	2019	3D	K2							
Mars1001	Mars 1001	2021		unk							
MJTMM	Michael Jordan To the Max	2000		GSF							

April 2021 Bookings Count

#	Film	#	Film	#	Film	#	Film
9	G3DNW	2	AGWN	1	AOTO	1	MAOOB
7	DOA	2	AMMM	1	Bugs	1	Mars1001
7	TurtOdys	2	AncCaves	1	COTS	1	MJTMM
6	AfricAdv	2	BTBW	1	Cuba	1	MOF
6	BackWild	2	DreamBig	1	Dolphins	1	MOTUW
6	SupDogs	2	FOTB	1	ExpChesa	1	MounQues
5	SeaLion	2	GCA	1	ExtrWeat	1	Niagara
4	GBRF	2	HidUniv	1	FlyMons	1	Ocean3D
4	IAW	2	HumpbWha	1	GBR	1	Ozarks
4	Volcanoes	2	IncrPred	1	GC	1	Pandas
3	AmazAdve	2	MA	1	GWS	1	PlanPowe
3	AntarcSK	2	TA	1	HCBDT	1	SpaceNex
3	AsterHunt	2	TOTIA	1	HiddPac	1	Vikings
3	BFTB	2	TTA	1	Hubble	1	WildAfri
3	JTS	2	WWDP3D	1	Jerusale	1	WOTA
3	NPA	1	Angkor	1	JIAC	1	Yell
3	UnderSea	1	Animalop	1	JTTSP		